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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,655	09/12/2003	**Chang-Seok Geum**	8734.230/US	1984

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EXAMINER	
TADAYYON ESLAMI, TABASSOM	
ART UNIT	PAPER NUMBER
1712	
MAIL DATE	DELIVERY MODE
03/16/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/660,655	GEUM, CHANG-SEOK	
	Examiner	Art Unit	
	TABASSOM TADAYYON ESLAMI	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11 and 15-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11, 15-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/28/11 has been entered.

DETAILED ACTION

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 11, 15-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr et al. (U.S. Patent 6,391,378, hereafter '378) in view of Yamada et al. (U.S. Patent 6,001,203, hereafter '203), Enchi (WO00/11710, hereafter '710. U.S. Patent 6,455,099 cited as translation), Levey et al. (U.S. Patent 5,409,545, hereafter '545), and Kitahara et al, (U.S Patent 6,595,819, hereafter '819).

Claims 11, 15-16, and 18 are rejected. 378 teaches a method for dropping dropping material a nozzle and a substrate, and controlling the gap between the substrate and the nozzle to be maintained at a certain interval, comprising: loading a substrate on a table(250)[fig. 3]lowering a body supporting a syringe having a nozzle at one end toward a substrate; detecting an initial value between the nozzle and the substrate when a state of the contact type switch is

switched (col. 2, lines 1-44); stopping the lowering when the nozzle contacts the substrate, wherein a contact type switch(sensor) detects the nozzle contacting the substrate[column 2 lines 45-63], lifting up the body, so that the nozzle is isolated from the substrate (col. 1, lines 40-45). 378 also teaches lowering the body using a vertical driving motor (servo motor), wherein the vertical driving motor drives the nozzle according to driving data input from a user (computer system) [column 6 lines 37-52], and lowering the body, wherein the contact type switch (proximity sensor) detects the nozzle contacting the substrate, so that the nozzle reaches a desirable height from the initial value (col 1, lines 40-45). Although 378 teaches while the dropping material within the syringe is being dropped through the nozzle onto the substrate, horizontally moving the nozzle with the loaded substrate in forward/backward and left/right directions to adjust the position of the nozzle with the substrate[column 6 lines 37-52], and does not teach moving the table. However the examiner takes official notice that it is well known in the art to adjust the position between the nozzle and the substrate by moving the nozzle when the table is fixed, or by moving the table when the nozzle is fixed. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have operated the system of '378 when the table moves in different direction to adjust the position of the nozzle with respect to the substrate, because it is well known in the art just the position of the position of the nozzle with respect to the substrate by moving the nozzle or the substrate(table).'378 does not explicitly teach that driving data is input by a user using a keyboard or touch screen. The examiner takes official notice of the fact that industrial processes often allow user control via computer interfaces such as keyboards or touch screens. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have operated the system

of '378 via user input from a keyboard or touch screen in order to have controlled the system. 378 does not explicitly teach that the dispenser is for making a liquid crystal display (LCD) panel. However, '378 teaches that its method may be generically used to set the distance between the nozzle and substrate in all dispensing systems (col. 5, lines 36-47). '203 teaches that nozzles may be used to deposit liquid crystal material or sealing material in LCDs (col. 1, lines 1-23). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method of '378 to have set the distance between the nozzle and substrate when forming an LCD such as that of '203 with a reasonable expectation of success because '203 teaches that nozzles are used to deposit layers of LCDs and because '378 teaches a suitable method of setting an appropriate distance between a nozzle and substrate for dispensing systems. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. Sinclair & Carroll Co. v. lnterchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. 378 does not explicitly teach that the lifting is at a speed slower than the lowering. '710 teaches when moving nozzles relative to substrates for dispensing materials such as sealants, it is suitable to lift the nozzle at a slower rate(second speed) than the lowering(first speed) (Fig. 2, see '099, col. 4, lines 18-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have lifted the nozzle slower than it was lowered with a reasonable expectation of success because '710 teaches that such is an operative means of lifting and lowering a nozzle for the application of material such as sealants to substrates. 378 teaches that the nozzle may be operated by servo motors, but does not teach that a contact type switch is turned on or off when the nozzle is isolated from the substrate. However, '545 teaches the use of contact switches in order to

provide feedback when servo motors have brought something into a desired position. 378 teach that nozzle contact (height of nozzle) with the substrate is a desired starting position. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a contact type switch to have provided feedback when reaching the position with a reasonable expectation of success because '545 teaches that contact switches provide feedback to servo motors. They do not teach using a laser displacement sensor. '819 teaches that laser displacement sensors may be used in aligning substrates and nozzles for making display devices (col. 14, lines 7-30)such as initial or final values. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a laser displacement sensor in the device of '378 in order to aid in aligning the substrates with a reasonable expectation of success because '819 teaches that it is a suitable tool for aiding in such alignment.

4. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carr et al. (U.S. Patent 6,391,378, hereafter '378), Yamada et al. (U.S. Patent 6,001,203, hereafter '203), Enchi (WO00/11710, hereafter '710. U.S. Patent 6,455,099 cited as translation) , Levey et al. (U.S. Patent 5,409,545, hereafter '545), and Kitahara et al. (U.S Patent 6,595,819, hereafter '819), and further in view of Vinouze et al. 0d.S Patent 5,431,771, hereafter '771).

'378, '203, 710, '545, 819 and are discussed above, but do not teach using a silver paste. '771 teaches that electrode layers of LCDs may be applied using dispensing nozzles (col. 3, lines 3-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method of '378 to have set the distance between the nozzle and substrate when forming a silver paste layer of an LCD such as that of '771 with a reasonable

expectation of success because '771 teaches that nozzles are used to deposit electrode layers of LCDs and because '378 teaches a suitable method of setting an appropriate distance between a nozzle and substrate for dispensing systems. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. Sinclair & Carroll Co. v. lnterchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

Response to Arguments

5. Applicant's arguments filed 02/28/11 have been fully considered but they are not persuasive. Applicant argues Enchi et al do not teach horizontal and moving the table and teaches moving the nozzle, however it is well known in the art to move the nozzle or the substrate(table) to find the optimum position of the nozzle with the substrate.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TABASSOM TADAYYON ESLAMI whose telephone number is (571)270-1885. The examiner can normally be reached on 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 1712

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Supervisory Patent Examiner, Art Unit 1712